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Indian Standard

DIMENSIONS OF CAPS FOR TUNGSTEN FILAMENT GENERAL SERVICE ELECTRIC LAMPS

(Second Reprint OCTOBER 1995)

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Gr 3

December 1979

Indian Standard

DIMENSIONS OF CAPS FOR TUNGSTEN FILAMENT GENERAL SERVICE ELECTRIC LAMPS

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Indian Standard

DIMENSIONS OF CAPS FOR TUNGSTEN FILAMENT GENERAL SERVICE ELECTRIC LAMPS

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 16 July 1979, after the draft finalized by the Electric Lamps and Accessories Sectional Committee had been approved by the Electrotechnical Division Council.

0.2 This standard has been prepared to cover dimensions of Bayonet Caps B22 and Screw Caps E27 and E40 for tungsten filament general service electric lamps covered by IS : 418-1978*.

0.3 The designation and dimensions of the caps to be fitted to the lamps are the same as those recommended in IEC Publication No. 61-1 (1972) 'Lamp caps and holders together with gauges for the control of interchangeability and safety: Part I Lamp caps', published by International Electrotechnical Commission.

0.4 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS : 2-1960†. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard covers the dimensions of B-22/25 × 26, E-27/27, E-27/30, E-40/41 and E-40/45 caps for tungsten filament general service electric lamps.

---

*Specification for tungsten filament general service electric lamps (*third revision*).

†Rules for rounding off numerical values (*revised*).

2. DIMENSIONS

2.1 The dimensions of the caps shall comply with the appropriate tables as specified below:

a) B-22/25 × 26	Table 1
b) E-27/27 and 27/30	Table 2
c) E-40/41 and 40/45	Table 3

NOTE — The letter indicates the cap construction with the following code:

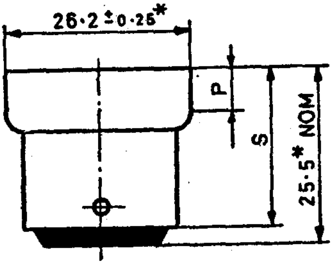
a) B — means bayonet, and

b) E — means screw thread.

TABLE 1 DIMENSIONS OF NORMAL BAYONET CAP B-22/25 × 26

The drawings are intended only to indicate the dimensions to be controlled.

B-22/25 × 26



All dimensions in millimetres.

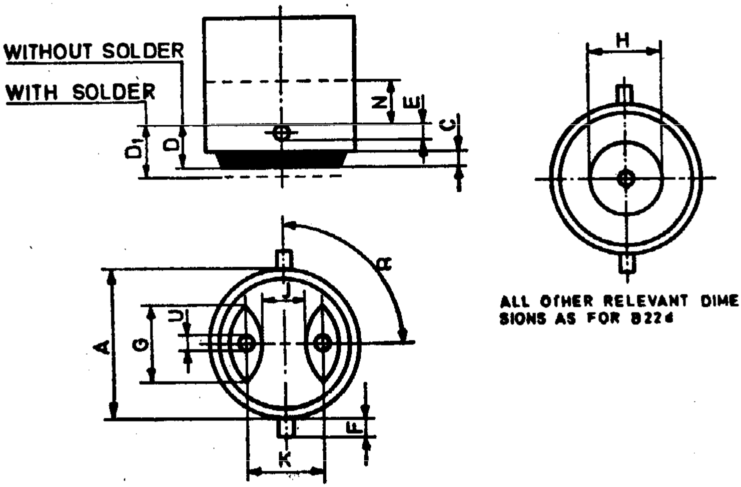
NOTE 1 — Caps may be made with a flare* the diameter of which shall be not more than 1 mm greater than the maximum permissible diameter of the corresponding cap without a flare.

NOTE 2 — For finished lamps, the creepage distance over insulation shall be not less than 3 mm between live parts and not less than 2·5 mm between live parts and the metal shell.

*These dimensions are solely for cap design and are not to be gauged on the finished lamp.

(*Continued*)

TABLE 1 DIMENSIONS OF NORMAL BAYONET CAP B-22/25 × 26 — *Contd*



ALL OTHER RELEVANT DIMENSIONS AS FOR B22d

DIMENSION	UNMOUNTED CAPS*		CAPS ON FINISHED LAMPS	
	Min	*Max*	*Min*	*Max*
A†	21·75	22·05	21·75	22·15
C	1·9	2·5	—	—
D‡	6·0	6·8	—	—
D_1	—	—	6·0	8·0
E	1·8	2·2	1·8	2·2
F	2·3	2·7	2·3	2·7
G	10·0	—	10·0§	—
H	Approx 10		Approx 10	
J	4·0	—	3·0§	—
K	10·3||	10·5||	—	—
N†	6·7	—	6·7	—
P¶	7·5	8·5	—	—
S	23·0	23·5	—	—
U	—	1·75||	—	—
α	Nom 90°||		—	

*The values shown below are solely for cap design and are not to be gauged unless otherwise specified.

†Dimension *N* denotes the minimum length over which dimension *A* shall conform below this length, dimension *A*, *Max*, shall not be exceeded.

‡A displacement in height between the two pins is permitted but this shall not exceed 0·4 mm.

§This dimension is checked with a millimetre scale.

||These values apply to caps intended for automatic threading. Dimension *U*, *Max*, is to be checked by a suitable plug gauge. For other caps, dimension *K* may have values of 10·0 mm, *Min*, and 11·3 mm, *Max*, and angle α limiting values of 82°30′ and 97°30′. The value of dimension *U* is not specified.

¶Dimension *P* denotes the length over which the skirt shall be cylindrical.

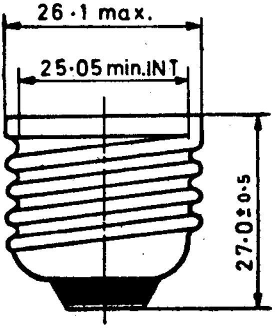
IEC Ref No. 7004-10-5

TABLE 2 DIMENSIONS OF EDISON MEDIUM SCREW CAPS E-27/27 AND E-27/30

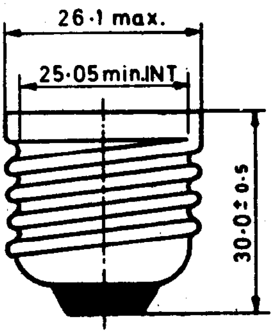
(*Clause* 2.1)

The drawings are intended only to indicate the dimensions to be controlled

E-27/27



E-27/30



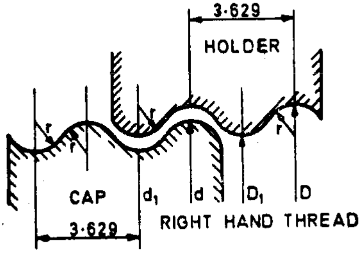
All dimensions in millimetres.

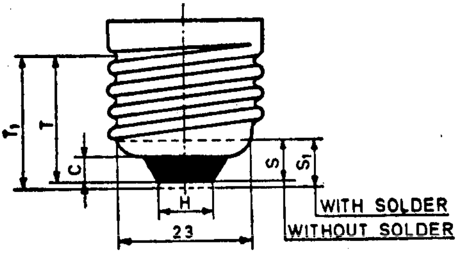
NOTE 1 — Caps may be made with a flare the diameter of which shall be not more than 1 mm greater than the maximum permissible diameter of the corresponding cap without a flare.

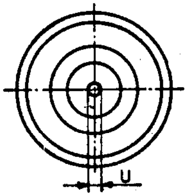
NOTE 2 — For finished lamps, the creepage distance over insulation shall be not less than 3 mm.

(*Continued*)

TABLE 2 DIMENSIONS OF EDISON MEDIUM SCREW CAPS E-27/27 AND E-27/30 — *Contd*







All dimensions in millimetres.

Dimension		Unmounted Caps*		Caps on Finished Lamps	
		Min	*Max*	*Min*	*Max*
Cap	*C*	3·5	—	3·5	—
	H†	9·5	11·5	9·5	11·5
	S	7·0	7·8	—	—
	S_1	—	—	7·0	8·5
	T‡	22·0	—	—	—
	T_1§	—	—	22·0	—
	U‖	1·35	1·75	—	—
	d	26·05	26·38	26·05	26·45
	d_1	—	24·19	—	24·26
	r¶	1·025		1·025	

Dimension		*Min*	*Max*
Holder	*D*	26·55	—
	D_1	24·36	24·66
	r¶	1·025	

---

*These dimensions are for cap design only and no provision is made for gauging.

†This dimension is checked with a millimetre scale.

‡*T* is the distance from the contact plate to the completion of the effective thread.

§T_1 is the distance from the soldered contact plate to the completion of the effective thread.

‖This dimension applies only to caps intended for automatic threading.

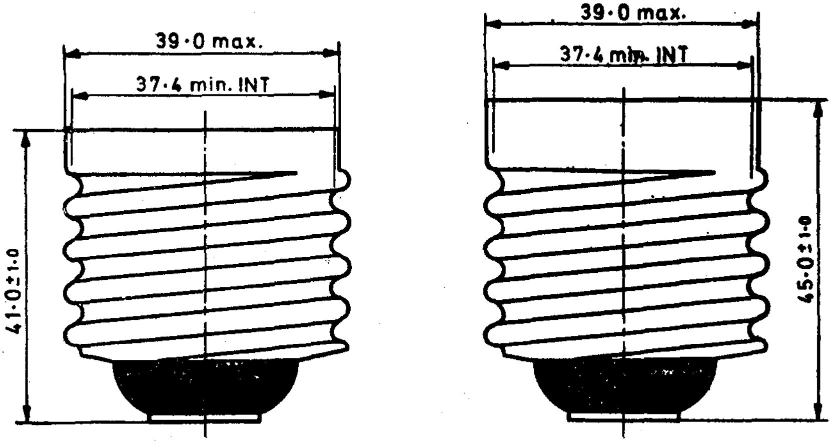
¶This dimension, which is derived from the theoretical thread profile, is for gauge design and is not to be checked on the cap or the holder.

IEC Ref No. 7004-21-7

TABLE 3 DIMENSIONS OF EDISON SCREW CAPS E-40/41 AND E-40/45

(*Clause* 2.1)

The drawings are intended only to indicate the dimensions to be controlled.


E-40/41 E-40/45

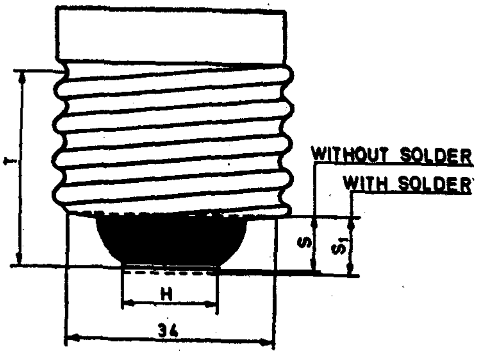
NOTE 1 — Caps may be made with a flare the diameter of which shall be not more than 1 mm greater than the maximum permissible diameter of the corresponding cap without a flare.

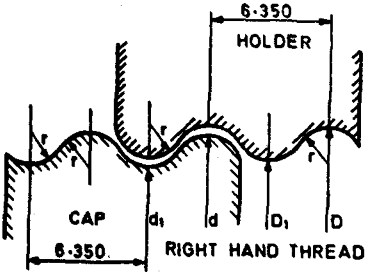
NOTE 2 — For finished lamps the creeping distance over insulation shall be not less than 5 mm.

NOTE 3 — Holder manufacturers are requested to take account, in their new designs, of the fact that the holder shall accommodate a cap with an overall length of 41 mm.

(*Continued*)

TABLE 3 DIMENSIONS OF EDISON SCREW CAPS E-40/41 AND E-40/45 — *Contd*





All dimensions in millimetres.

Dimension		E-40	
		Min	*Max*
	H*	14·0	18·0
	S	8·0	9·0†
	S_1	—	10·0
	T‡	34·0	—
Cap	d	39·05	39·50
	d_1	35·45	35·90
Holder	D	39·60	40·05
	D_1	36·00	36·45
	r	1·85	

*This dimension is checked with a millimetre scale.

†These dimensions are solely for cap design and are not to be gauged on the finished lamp.

‡T is the distance from the contact plate of the cap to the completion of the thread.

IEC Ref No. 7004-24-4

INDIAN STANDARDS
ON
ELECTRICAL LAMPS AND ACCESSORIES

IS:	
418-1978	Tungsten filament general service electric lamps (*third revision*)
897-1966	Tungsten filament electric lamps for railway rolling stock (*first revision*)
1258-1967	Bayonet lampholders (*first revision*)
1534 (Part I)-1977	Ballasts for fluorescent lamps: Part I For switch start circuits (*second revision*)
1569-1976	Capacitors for use in tubular fluorescent, high pressure mercury and low pressure sodium vapour discharge lamp circuits (*first revision*)
1606-1979	Automobile lamps (*second revision*)
1885 (Part XVI/Sec 3)-1967	Electrotechnical vocabulary: Part XVI Lighting, Section 3 Lamps and auxiliary apparatus
1901-1978	Visual indicator lamps (*first revision*)
2183-1973	Schedule for high pressure mercury vapour lamps (*first revision*)
2215-1968	Starters for fluorescent lamps (*second revision*)
2261-1975	Lamps for flashlights (*first revision*)
2262-1963	Transformers for high voltage luminous/discharge tubes
2407-1963	Photometric integrators
2418 (Part I)-1977	Tubular fluorescent lamps for general lighting service: Part I Requirements and tests
2418 (Part II)-1977	Tubular fluorescent lamps for general lighting service: Part II Standard lamp data sheets
2418 (Part III)-1977	Tubular flourescent lamps for general lighting service: Part III Dimensions of G-5 and G-13 bi-pin caps
2418 (Part IV)-1977	Tubular fluorescent lamps for general lighting service: Part IV Go and no-go gauges for G-5 and G-13 bi-pin caps
2592-1964	Lamps for lighting on board ships
2596-1964	Bulbs (lamps) for miners' cap-lamps
3323-1965	Bi-pin lampholders for tubular fluorescent lamps
3324-1965	Holders for starters for tubular fluorescent lamps
6616-1972	Ballasts for high pressure mercury vapour lamps
6701-1972	Tungsten filament miscellaneous electric lamps
7013-1973	Schedule for radio dial lamps
7023-1973	Methods of tests for high pressure mercury vapour lamps
7027-1973	Transistorized ballasts for fluorescent tubes
8685-1977	Aircraft lamps
8901-1978	Lamps for aerodrome lighting
8913-1978	Method of measurement of lamp cap temperature rise
9206-1979	Dimensions of caps for tungsten filament general service electric lamps

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AMENDMENT NO. 1 SEPTEMBER 1987

TO

IS : 9206-1979 DIMENSIONS OF CAPS FOR TUNGSTEN FILAMENT GENERAL SERVICE ELECTRIC LAMPS

(*Page* 4, *clause* **2.1**) — Add the following new clause after **2.1**:

'**2.2** Caps shall be checked by the use of gauges for checking the dimension controlling interchangeability in accordance with the following tables:

a) 'No Go' gauge for caps B22 on finished lamps	Table 4
b) 'Go' gauge for caps B22 on finished lamps	Table 5
c) 'Go' gauge for E40 caps on finished lamps	Table 2 of IS : 9900 (Part 4)-1981*
d) 'Go' gauge for E27 caps on finished lamps	Table 3 of IS : 9900 (Part 4)-1981*
e) 'No Go' gauge for E40 caps on finished lamps	Table 4 of IS : 9900 (Part 4)-1981*
f) 'No Go' gauge for E27 caps on finished lamps	Table 5 of IS : 9900 (Part 4)-1981*

(*Page* 4, *foot-note*) — Add the following foot-note in the end:

'*High pressure mercury vapour lamps : Part 4 'Go' and 'No Go' gauges of lar caps.'

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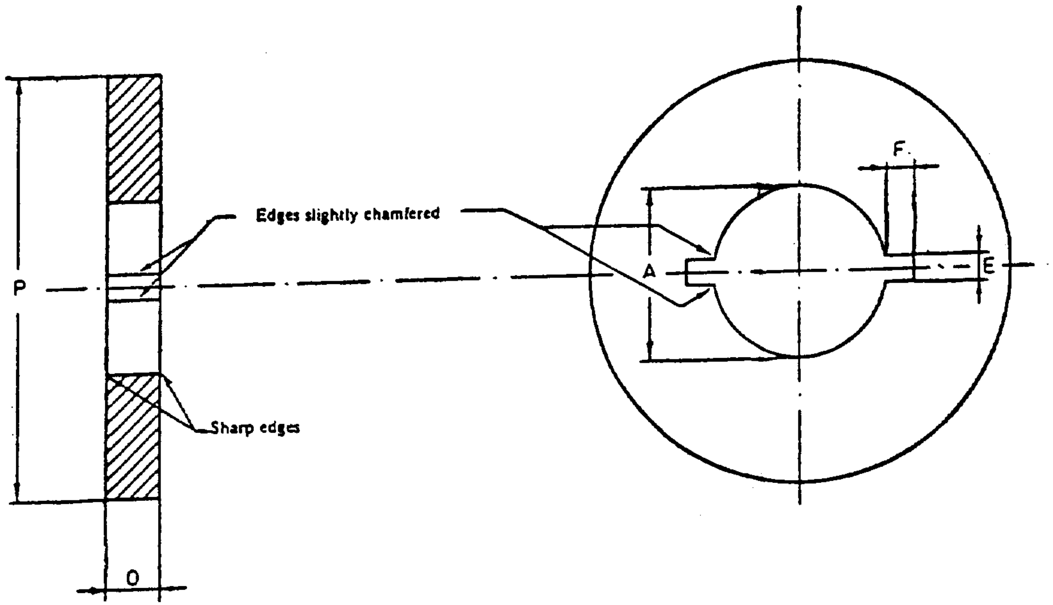
(*Page* 9, *Table* 3) — Add the following tables after Table 3:

TABLE 4 'NO GO' GAUGE FOR CAPS B22 ON FINISHED LAMPS

(*Clause* 2.2)

The drawing is intended only to illustrate the essential dimensions of the gauges.



All dimensions in milimetres.

MATERIAL : STEEL

DIMENSION	B 22	TOLERANCE
A	21·75	+ 0·0 − 0·01
E	3·5	+ 0·5 − 0·5
F	3·5	+ 0·5 − 0·5
O	7	+ 0·1 − 0·1
P	53	Approx

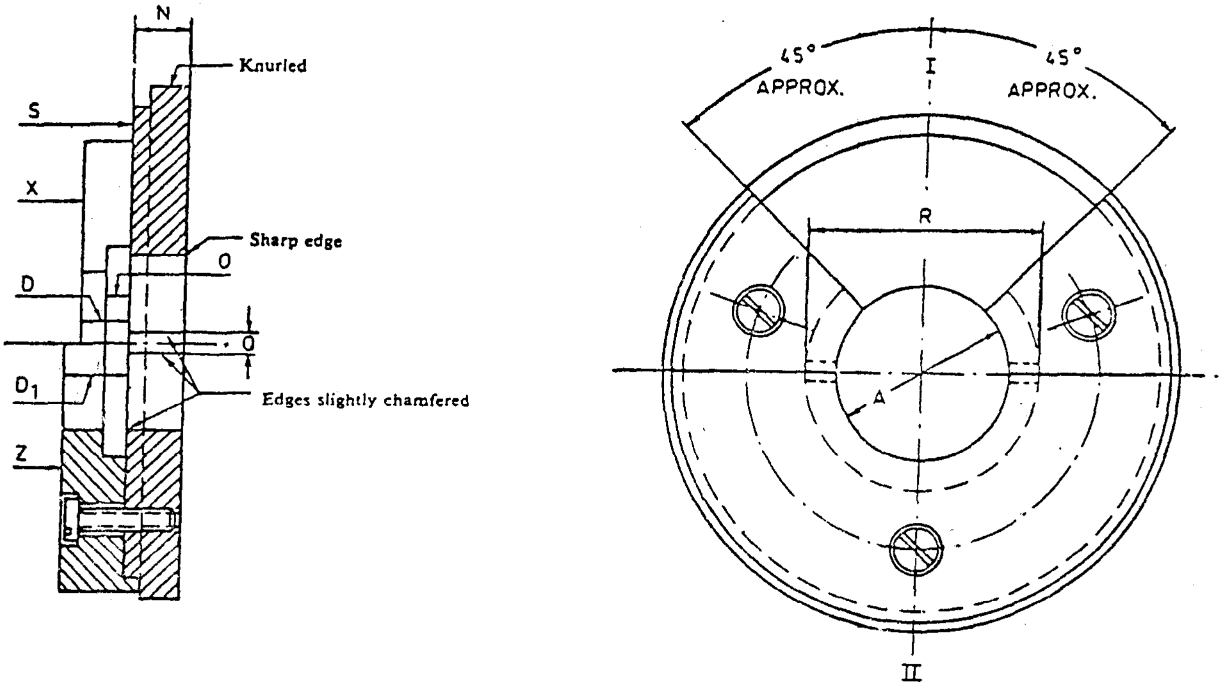
Purpose : For the control of dimension *A Min.*

Testing : Caps on finished lamps shall be assumed to be correct if the gauge does not pass over the caps by its own weight.

TABLE 5 'GO' GAUGES FOR CAPS B22 ON FINISHED LAMPS

(*Clause* 2.2)

The drawing is intended only to illustrate the essential dimensions of the guages.



All dimensions in millimetres.

MATERIAL : STEEL

DIMENSION	B 22	TOLERANCE	DIMENSION	B 22	TOLERANCE
A	22·15	+ 0·01 − 0·0	*O*	3·05	+ 0·0 − 0·05
D	6·0	+ 0·0 − 0·01	*Q*	2·5	+ 0·0 − 0·04
D_1	8·0	+ 0·02 − 0·0	*R*	29·5	+ 0·0 − 1·0
N(1)	6·7	+ 0·0 − 0·01			

Purpose : For the control of dimensions *A Max, N Min, D Min,* D_1 *Max* and the diametrical position of the pins.

Testing : The cap shall enter the gauge until the pins have passed through the slots *Q*. The cap is then turned through a small angle and is pressed so that the pins are in close contact with surface *S*. In this position, the contact making surface shall not be below surface *X* or shall it project beyond the surface *Z*. Dimension *N* of the guage tests the diameter of the cap for a sufficient length to ensure interchangeability of the caps in the holders.

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AMENDMENT NO. 2 MARCH 1989
TO
IS : 9206 - 1979 DIMENSIONS OF CAPS FOR TUNGSTEN FILAMENT GENERAL SERVICE ELECTRIC LAMPS

[*Page* 4, *clause* **2.2** (*see also Amendment No.* 1)] — Add the following new clauses after **2.2**:

'3. INSULATION RESISTANCE OF THE CAPS

3.1 The insulation resistance measured between the contacts and each of the contacts and shell of the cap shall be not less than 50 megohms. Insulation resistance shall be measured with 500 V dc applied for a period of one minute.

3.2 If the insulation resistance value is below the requirements of **3.1**, then the caps shall be stored in a warm dry atmosphere for 24 hours and then retested for insulation.

4. MARKING

4.1 The caps may also be marked with the Standard Mark.

'NOTE — The use of the Standard Mark is governed by the provisions of the Bureau of Indian Standards Act 1986 and the Rules and Regulations made thereunder. The Standard Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well defined system of inspection, testing and quality control which is devised and supervised by BIS and operated by the producer. Standard marked products are also continuously checked by BIS for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.'

(ETDC 23)

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